



## Absorptive Digital Control Attenuator 1 - 18GHz



### Features

- Ultra Wide Band Operation 1-18GHz
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit
- Customization available upon request

Electrical Specifications,  $T_A = +25^\circ\text{C}$ ,  $V_{dd} = +5\text{V}$ ,  $V_{ss} = -5\text{V}$  &  $V_{CTL} = 0 / +5\text{V}$

Description	PN: RFDAT0812G6A			
	Absorptive Digital Attenuator			
Parameters	Min	Typ.	Max	Units
Frequency Range	1		18	GHz
Attenuation Range			63	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±3.0		dB
Control Bits			6	Bit
Control Step size	1			dB
Insertion Loss		7.3	7.8	dB
Insertion Loss Temperature Coefficient		0.005		dB/°C
Input VSWR (All Atten. States)		1.6	2.0	:1
Output VSWR (All Atten. States)		1.6	2.0	:1
Input 0.1 dB Compression Point ( $P_{o.1dB}$ )		30		dBm
IP3 Input		45		dBm
Switching Speed		150		ns
Weight		1.41		ounces
Impedance		50		$\Omega$
Bias Current (+5V/-5V)		130/130		mA
Input / Output Connectors	SMA - Female			
Interface and Control Connector	MICRO-D9(Female)			
Finish	Gold Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			



**Absolute Maximum Ratings**

Biassing	+5V±10%/-5V±10%
TTL Control Voltage	0~0.8V / 2.8~5V

**Ordering Information**

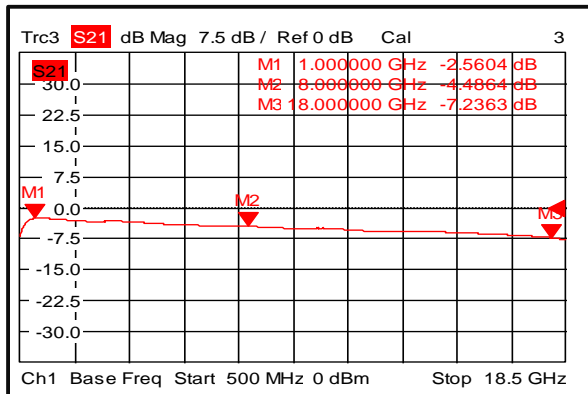
Part No.	ECCN	Description
RFDAT0118G6A	EAR99	1-18GHz Digital Control Attenuator

**Environmental Specifications**

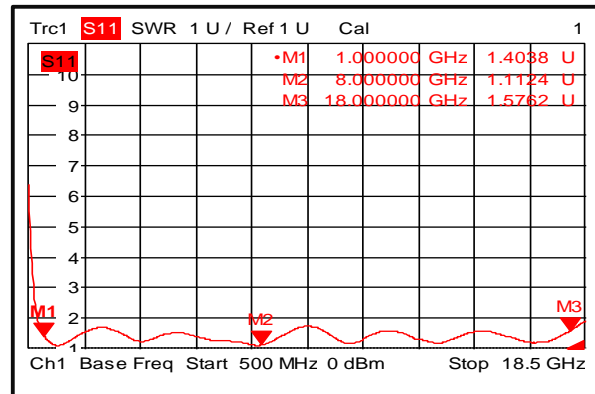
Operational Temperature (°C)	-45 ~ +85
Storage Temperature (°C)	-50 ~ +125
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40 deg c
Shock	20G for 11msec half sine wave, 3 axis both directions

**Typical Performance Plots**

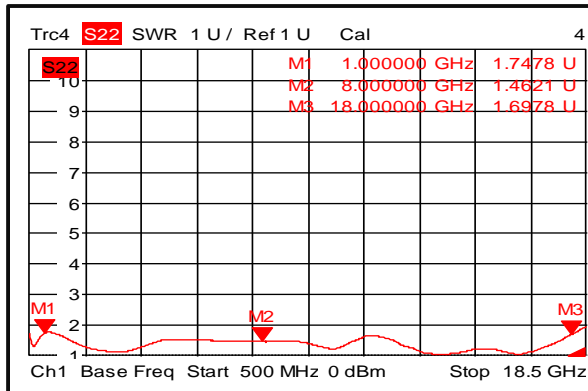
**Insertion Loss @+25°C**



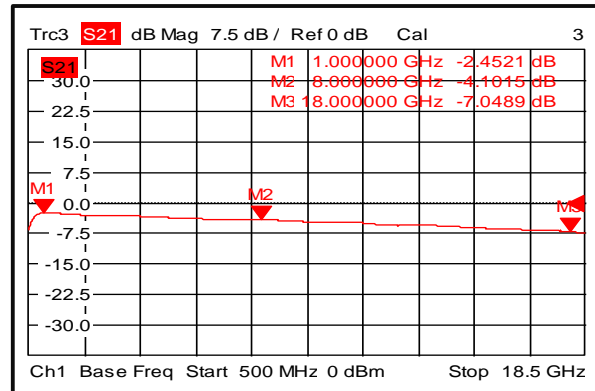
**Input VSWR @+25°C**



**Output VSWR @+25°C**

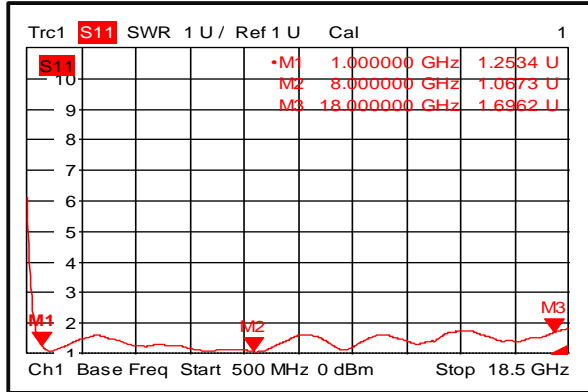


**Insertion Loss @-45°C**

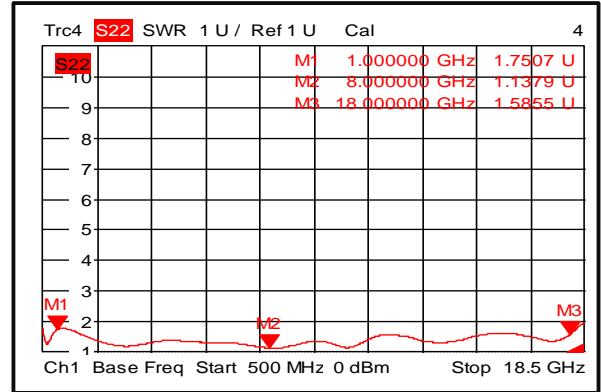




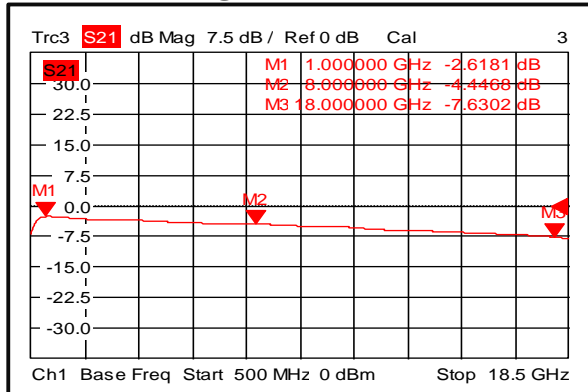
**Input VSWR @-45°C**



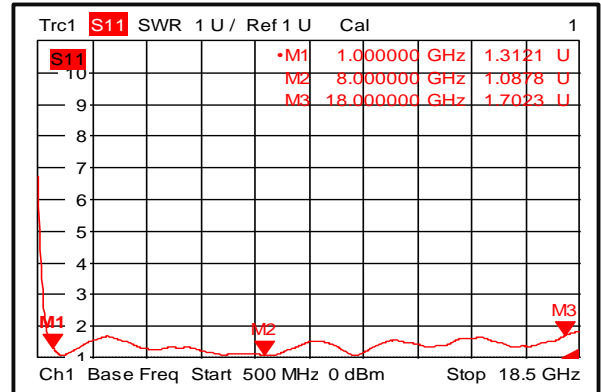
**Output VSWR @-45°C**



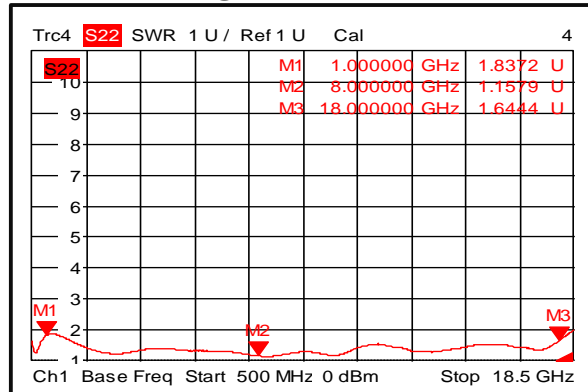
**Insertion Loss @+85°C**



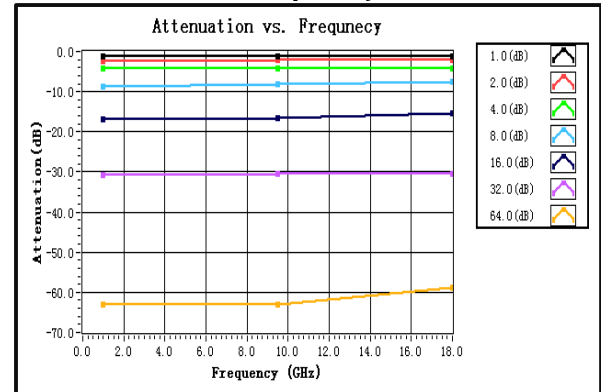
**Input VSWR @+85°C**



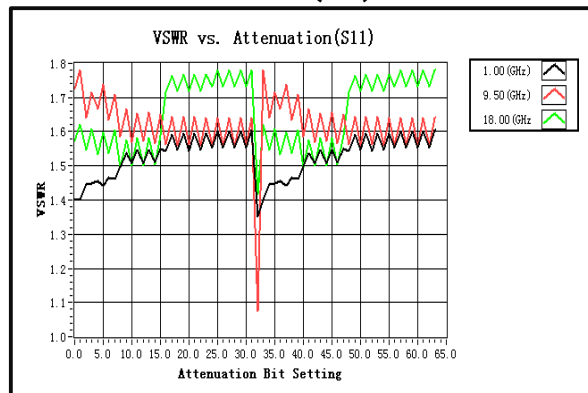
**Output VSWR @+85°C**



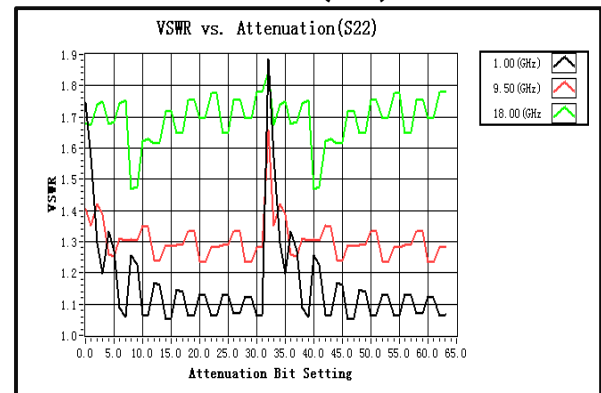
**Attenuation vs. Frequency**



**VSWR vs. Attenuation(S11)**

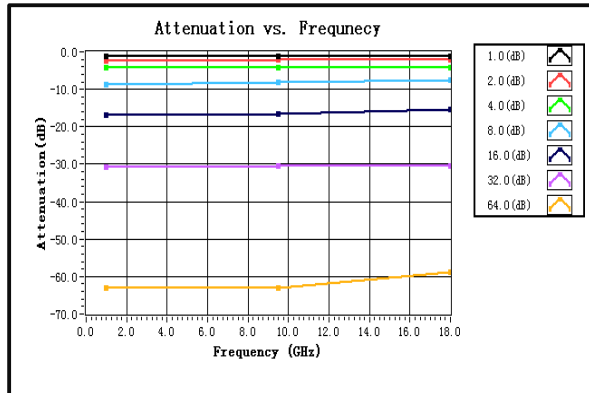


**VSWR vs. Attenuation(S22)**

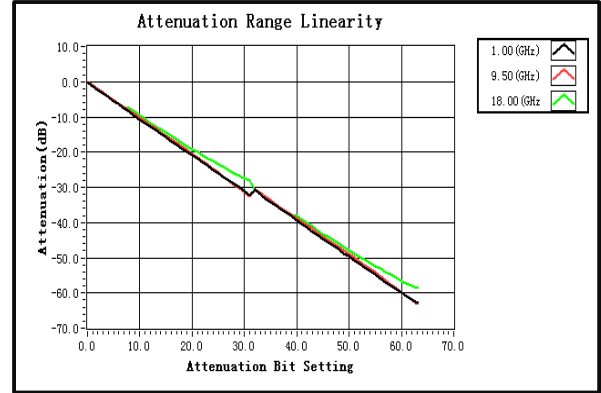




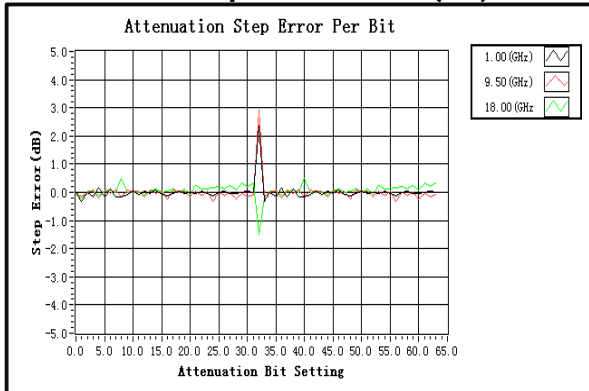
**Attenuation Flatness vs. Frequency**



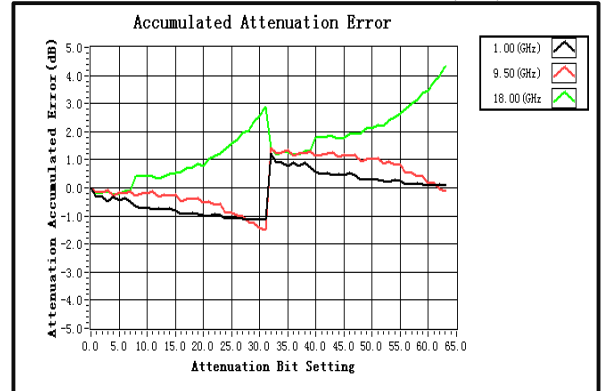
**Attenuation Range Linearity**



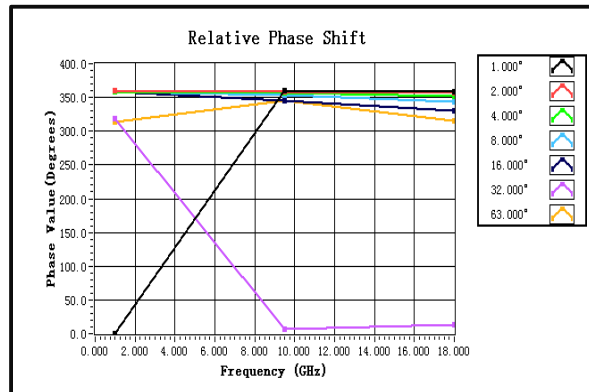
**Attenuation Step Error Per Bit (dB)**



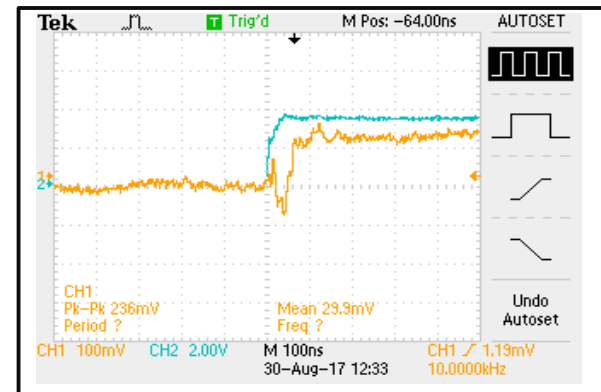
**Accumulated Attenuation Error (dB)**



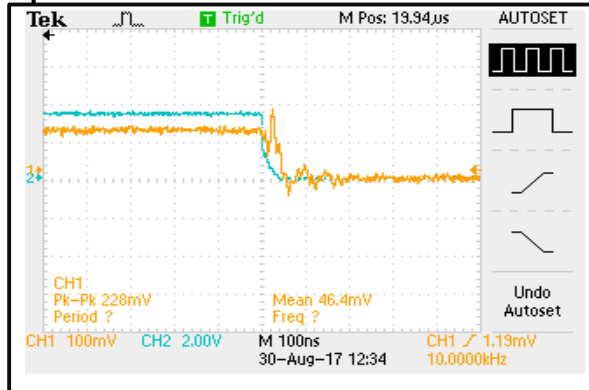
**Relative Phase Shift**



**Speed**



**Speed**

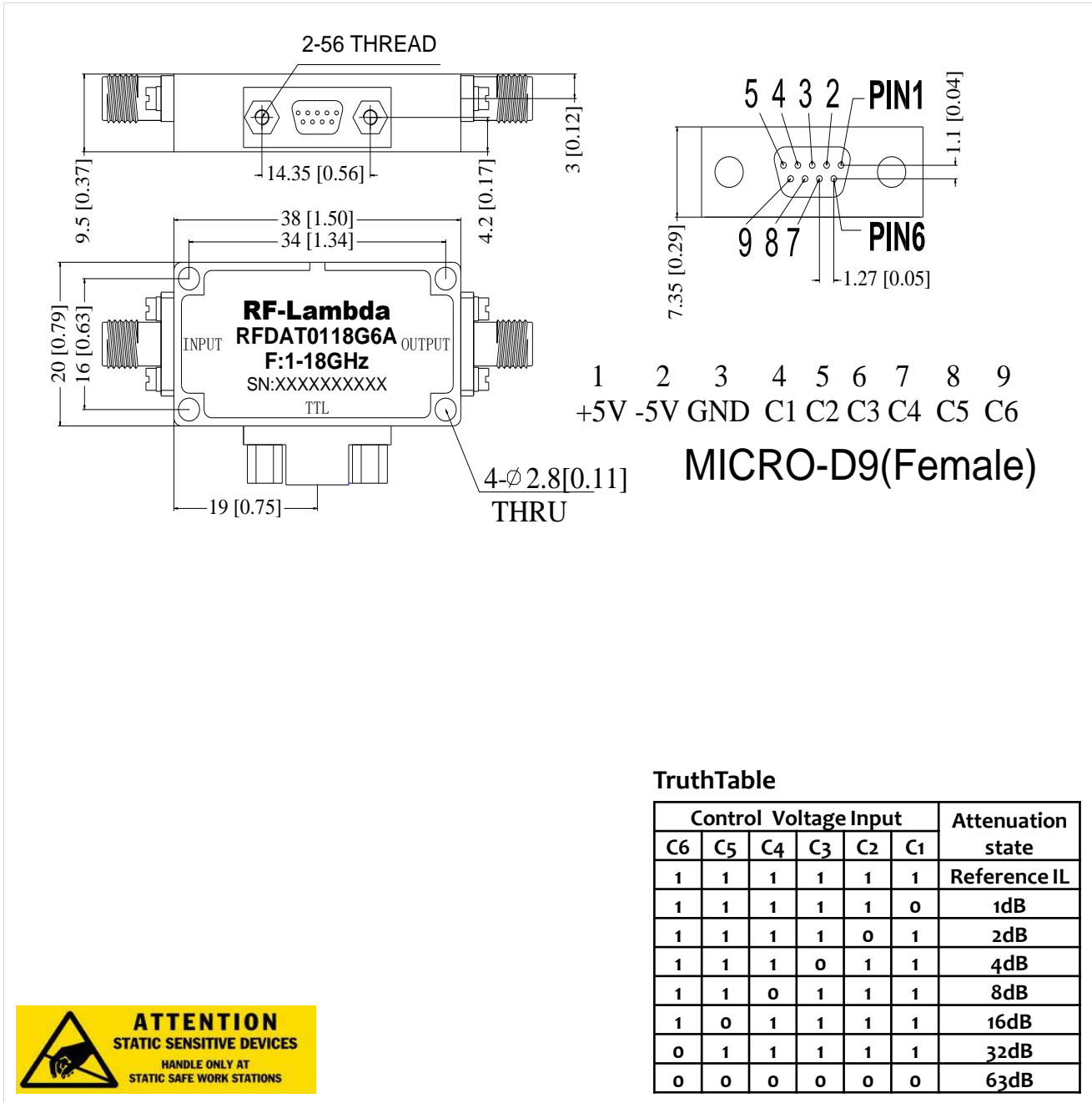


**Absorptive Digital Control Attenuator 1 - 18GHz**



**Outline Drawing:**

All Dimensions in mm [inches]



**Absorptive Digital Control Attenuator 1 - 18GHz**

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